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CRITICAL EXPERIMENTS

The **HYPATIA** experiment campaign on Planet investigated characteristics of yttrium hydride (YH_x) for use in small modular reactor designs. The design included a central, cylindrical fuel column consisting of HEU, YH_x , and aluminum spacers surrounded by beryllium reflector. It was sponsored by DOE-NE and completed in January of 2021.

The **MUSIC** experiment campaign on Planet includes measurements with four different detectors and techniques on configurations that span from deeply subcritical to slightly above delayed critical. The experiment series was sponsored by NCSP and ran from December 2020 through March 2021.

LANL collaborated with Mirion Technologies and Y-12 to test the **CAAS-3S** criticality alarm system in January 2021. Three bursts and two delayed critical steady-state operations were performed on Godiva, and all of the project milestones were met. This work was sponsored by NCSP.

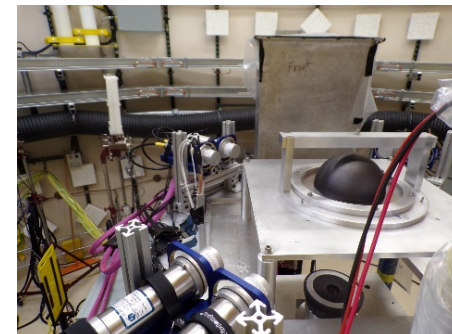
Quarterly Maintenance, DOP Testing, and Decontamination activities were also completed in February 2021 to support all of these operations.

CRITICALITY SAFETY CLASSES

Socially distanced criticality safety training was able to resume this year. One class was conducted in March 2021, with participants from Emergency Response.



▲ **NEN-2** experimenter Theresa Cutler verifies the Hypatia experiment configuration before performing remote operations.



▲ One MUSIC configuration, showing the various detectors and Rocky Flats HEU hemishells.

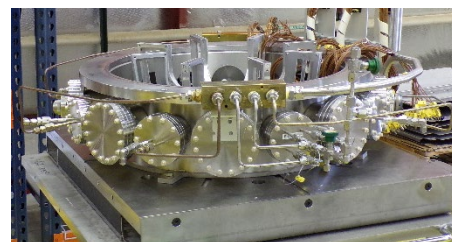


◀ A class participant holds the BeRP ball.

06-911 WAREHOUSE INVENTORY + KRUSTY DISASSEMBLY

In March 2021, NCERC organized, inventoried, and in some cases disposed of 10 years worth of equipment stored from previous experiments and activities. Components from the KRUSTY experiment were disassembled and decontaminated, and are one step closer to returning back to NASA.

▶ **KRUSTY**, before and after disassembly



▲ NCERC warehouse clean up and inventory.